[10191/4796]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	:	
	:	Examiner: Pedro J. Cuevas
Xaver LAUFENBERG et al.	:	
	:	
For: ELECTRICAL DEVICE AND OPERATING METHOD	:	
	:	
Filed: May 15, 2007	:	Art Unit: 2839
	:	
Serial No.: **10/582,926**	:	

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
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Signature: /Marcello Petrone/
Marcello Petrone

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

SIR:

In the above-identified patent application ("the present application"), Appellants e-filed a Notice Of Appeal on January 28, 2011 as to the Final Office Action issued by the U.S. Patent and Trademark Office on September 17, 2010, so that the two-month appeal brief due date is March 28, 2011, which is extended by one month to *April 28, 2011* by the accompanying Transmittal and Petition to Extend.

In the Final Office Action, claims 16 to 38 were finally rejected.

A Response After A Final Office Action was mailed on December 9, 2010 (and filed on December 14, 2010), and an Advisory Action was mailed on January 11, 2011.

It is understood for purposes of the appeal that any Amendments to date have already been entered by the Examiner, and that the Response After A Final Office Action of December 14, 2010, did not include any amendments.

The Appeal Brief is believed to comply with all the requirements of Rule 41.37. It is noted that the "concise explanation" language of the Rule is like the "concise explanation" requirement of former Rule 37 CFR 1.192, and that the length of the concise explanation provided herein should therefore be acceptable, since the format was acceptable under 37 CFR 1.192 and since it specifically defines the subject matter of the relevant claims involved in the appeal. AARON C. DEDITCH (reg. no. 33,865) has filed many appeal briefs, the concise explanation for which has ultimately always been accepted by the Patent Office. ***The Office is encouraged to contact the undersigned if there are any questions as to the description of the claimed subject matter.***

It is noted that the Patent Office Rules do not require the Applicants to include references cited by and relied upon by the Examiner in the Evidence Appendix (although it is required by the Office for the Examiner). In the present Appeal, the Applicants have not submitted any evidence on which they intend to rely, so that the Evidence Appendix lists no evidence.

It is respectfully submitted that the final rejections of pending claims 16 to 38 should be reversed for the reasons explained below.

1. REAL PARTY IN INTEREST

The real party in interest in the present appeal is Robert Bosch GmbH ("Robert Bosch") of Stuttgart in the Federal Republic of Germany. Robert Bosch is the assignee of the entire right, title and interest in the present application.

2. RELATED APPEALS AND INTERFERENCES

There are no interferences or other appeals related to the present application, which "will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal".

3. STATUS OF CLAIMS

Claims 16 to 38 were rejected under 35 U.S.C § 103(a) as unpatentable over EP 1,111,753 to Koji et al., ("Koji") in view of U.S. Publication No. 2003/107351 to Taniguchi et al., ("Taniguchi").

Appellants therefore appeal from the final rejections of pending claims 16 to 38. A copy of all of the pending and appealed claims 16 to 38 is attached hereto in the Appendix.

4. STATUS OF AMENDMENTS

In response to the Final Office Action mailed on September 17, 2010, a Response After A Final Office Action was mailed on December 9, 2010 (and filed on December 14, 2010) in response to the Final Office Action, and an Advisory Action was mailed on January 11, 2011.

It is understood for purposes of the appeal that any Amendments to date have already been entered by the Examiner, and that the Response After Final did not include any amendments.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The concise explanation of the summary of the claimed subject matter is as follows, as described in the context of the present application.

As to claim 16, it is to an electrical device for controlling a generator in an electrical system of a motor vehicle, including: a controller configured to control a voltage of the generator by outputting a control signal to the generator in response to changes in the

generator voltage. Figure 1 shows a first block diagram of a system 1 including a combustion engine and a device having a generator and a vehicle electrical system. Various functional modules are shown schematically, and so are the functional connections between these functional modules. Reference numeral 10 designates a combustion engine, reference numeral 11 designates an electronic engine control assigned to the combustion engine. Reference numeral 12 designates an electric generator which includes an electrical machine 12A and a controller 12B. Electrical machine 12A is driven by combustion engine 10, and converts the mechanical energy generated by combustion engine 10 to the electrical energy required for a vehicle electrical system. System 1 also includes a functional module battery management, which bears reference numeral 14. Vehicle electrical system 13 and generator 12 are linked via load current I_Last. When a strong electrical consumer is switched on in vehicle electrical system 13, such as a rear window heater in the wintertime, a great change with time dI_Last/dt of load current I_Last takes place, and consequently a high load on generator 12 is triggered. The great change with time of the load current, in this case a great increase of load current I_Last, leads to a sudden drop in voltage U_Gen that is given off by electrical machine 12A. Electrical machine 12A and controller 12B are linked to each other via the variables voltage U_Gen and exciting current I_Err. As soon as controller 12B records the drop in voltage U_Gen, it tries to increase the power given off by generator 12 by controlling and correspondingly increasing exciting current I_Err. (See Specification, pg. 4, line 6, to pg. 5, line 3; and Fig. 1).

As to claim 16, it also includes the feature in which the controller provides a first area of operation based on the value of the generator voltage, in which a voltage control is performed to regulate the generator voltage, to the exclusion of performing a torque control to regulate a braking torque exerted by the generator, and at least one second area of operation based on the value of the generator voltage, in which the torque control is performed, to the exclusion of performing the voltage control. Figure 3 shows a block diagram showing the controlling areas, and it also clarifies the interaction between the vehicle electrical system (functional module 13 in Figure 2) and the drive train (functional module 20 in Figure 2). Different types of controlling areas may be characterized, which are further subdivided if necessary. In a first area 30, which lies in the immediate surround field of setpoint voltage U_Soll, a voltage control is provided. In this context, if changes in torque M occur, these are permitted up to a specifiable boundary value, excess torque M_Überschuss.

Next to this first controlling area (area 30), there adjoins a controlling area (areas 31, 32) in which generator 12 is not able to adjust occurring load changes and voltage changes using the available, specifiable excess torque M_Überschuss, the occurring voltage deviation, however, still being within an admissible voltage range. In this context, the admissible voltage range is determined by the specifiable boundary values U_H and U_L. Finally, in a third controlling area (areas 33, 34), there is a situation in which the voltage of vehicle electrical system 13 is outside the admissible voltage range, that is, it exceeds upper boundary value U_H or undershoots lower boundary value U_L. (See Specification, pg. 6, lines 2 to 24; and Figs. 2 and 3).

As to claim 16, it also includes the feature of the controller transitioning from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value, the first upper threshold value and the first lower threshold value being defined by a boundary of the first area; wherein the generator is coupled to an engine to generate electrical power.

The diagram in Figure 4 shows diverse curves in light of which the functioning of electrical device 1 will be explained below. Curves, which are plotted over a time axis, represent certain variables as functions of time. Curve 42 shows load current I_Last as a function of time T. Moreover, torque M is shown as a function of time T in curve 41. Finally, generator voltage U_Gen is shown as a function of time T in curve 40. (See Specification, pg. 6, lines 25 to 31; and Fig. 4). As curve 42 shows, load current I_Last rises steeply at time T1, because an electrical consumer has been switched on that has a large power consumption and that loads vehicle electrical system 13. As curve 40 shows, this great load results in a voltage dip. The generator voltage drops below setpoint voltage U_Soll and approximates lower boundary value U_L. At this point the second area of control is present, in which generator 12 is no longer able to adjust the load change and voltage change using the specifiable and available excess torque, but the deviation of the generator voltage is still just within the permissible boundary values U_H and U_L. In order to compensate for the load change and the voltage deviation associated with it, an increase in torque M is provided, and the system switches over from voltage control to torque control. Torque M rises to a higher value until at time T2 a value of torque M is reached which is sufficient for compensating the load change. At this time T2, generator voltage U_Gen has reached its setpoint value U_Soll

again, and a voltage control is carried out again. (See Specification, pg. 7, line 20, to pg. 8, line 5; and Fig. 4).

As to claim 25, it is to a method for controlling an operation of a generator in connection with a vehicle electrical system of a motor vehicle, including: recording a voltage of the generator, which is coupled to an engine to generate electrical power; determining whether the recorded voltage lies in a specified range from a setpoint voltage and performing a voltage control in which the generator voltage is regulated with reference to the setpoint voltage, to the exclusion of performing a torque control in which a braking torque exerted by the generator is regulated, if the recorded voltage lies in the specified range from the setpoint voltage, the specified range from the setpoint voltage defining a first area of operation. The diagram in Figure 4 shows diverse curves in light of which the functioning of electrical device 1 will be explained below. Curves, which are plotted over a time axis, represent certain variables as functions of time. Curve 42 shows load current I_Last as a function of time T. Moreover, torque M is shown as a function of time T in curve 41. Finally, generator voltage U_Gen is shown as a function of time T in curve 40. In addition, in the area of the curve representing the generator voltage, special voltage values are emphasized, namely, a setpoint value U_Soll, a minimum value U_L and a maximum value U_H. In this case, setpoint value U_Soll lies between the extreme values U_H and U_L named. We shall first examine the time interval between a point in time T0 and a point in time T1. Curve 42 shows that load current I_Last has a certain level and fluctuates only within comparatively narrow boundaries, which indicates an essentially constant load of vehicle electrical system 13. Curve 40, which represents generator voltage U_Gen, shows that generator voltage U_Gen is essentially constant and that it is regulated to its setpoint value U_Soll in the examined time interval T0-T1. Curve 41, representing torque M, also shows relatively low fluctuations of torque M, since quite small torque changes are sufficient for compensating for the fluctuations of load current I_Last. Consequently, interval T0-T1 corresponds to the first area of control in which a voltage control takes place in the immediate surround field of setpoint voltage U_Soll, and in which changes of torque M are permitted up to a specifiable excess torque. (See Specification, pg. 6, line 25 to pg. 7, line 31; and Fig. 4).

As to claim 25, it also includes the feature of performing the torque control, to the exclusion of performing the voltage control, if the recorded voltage: a) lies outside the specified range from the setpoint voltage; and b) lies within a predetermined range defined by voltage boundary values, the area specified by a) and b) defining at least one second area of operation. The diagram in Figure 4 shows diverse curves in light of which the functioning of electrical device 1 will be explained below. Curves, which are plotted over a time axis, represent certain variables as functions of time. Curve 42 shows load current I_Last as a function of time T. Moreover, torque M is shown as a function of time T in curve 41. Finally, generator voltage U_Gen is shown as a function of time T in curve 40. (See Specification, pg. 6, lines 25 to 31; and Fig. 4). As curve 42 shows, load current I_Last rises steeply at time T1, because an electrical consumer has been switched on that has a large power consumption and that loads vehicle electrical system 13. As curve 40 shows, this great load results in a voltage dip. The generator voltage drops below setpoint voltage U_Soll and approximates lower boundary value U_L. At this point the second area of control is present, in which generator 12 is no longer able to adjust the load change and voltage change using the specifiable and available excess torque, but the deviation of the generator voltage is still just within the permissible boundary values U_H and U_L. In order to compensate for the load change and the voltage deviation associated with it, an increase in torque M is provided, and the system switches over from voltage control to torque control. Torque M rises to a higher value until at time T2 a value of torque M is reached which is sufficient for compensating the load change. At this time T2, generator voltage U_Gen has reached its setpoint value U_Soll again, and a voltage control is carried out again. (See Specification, pg. 7, line 20, to pg. 8, line 5; and Fig. 4).

As to claim 25, it also includes the feature of specifying a highest priority for the voltage control, if the recorded voltage lies outside the predetermined range defined by the voltage boundary values. In this situation, the voltage control has the highest priority, since voltage-sensitive components or assemblies are greatly at risk. Therefore, as shown in curve 41, it is first taken care that torque M is reduced to a correspondingly low value, in order to attain as fast as possible a voltage drop to a noncritical value. This is the case approximately at time T4, at which the voltage reaches the maximum value U_H again or falls below it. At this time T4, a torque control sets in again, until the torque that is too high has dropped down to a lower level that is sufficient for the lower power demands, and the voltage has attained

its setpoint value U_Soll again. This is the case approximately as of time T5. Beginning at this point in time, the system switches over to voltage control. (See Specification, pg. 8, lines 5 to 19 and Fig. 4).

In summary, the presently claimed subject matter is to an electrical device for controlling a generator in an electrical system of a motor vehicle, including: a controller configured to control a voltage of the generator by outputting a control signal to the generator in response to changes in the generator voltage, wherein the controller provides a first area of operation based on the value of the generator voltage, in which a voltage control is performed to regulate the generator voltage, to the exclusion of performing a torque control to regulate a braking torque exerted by the generator, and at least one second area of operation based on the value of the generator voltage, in which the torque control is performed, to the exclusion of performing the voltage control, the controller transitioning from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value, the first upper threshold value and the first lower threshold value being defined by a boundary of the first area; wherein the generator is coupled to an engine to generate electrical power. (See claim 16).

In further summary, the presently claimed subject matter is also to a method for controlling an operation of a generator in connection with a vehicle electrical system of a motor vehicle, including: recording a voltage of the generator, which is coupled to an engine to generate electrical power; determining whether the recorded voltage lies in a specified range from a setpoint voltage; performing a voltage control in which the generator voltage is regulated with reference to the setpoint voltage, to the exclusion of performing a torque control in which a braking torque exerted by the generator is regulated, if the recorded voltage lies in the specified range from the setpoint voltage, the specified range from the setpoint voltage defining a first area of operation; performing the torque control, to the exclusion of performing the voltage control, if the recorded voltage: a) lies outside the specified range from the setpoint voltage; and b) lies within a predetermined range defined by voltage boundary values, the area specified by a) and b) defining at least one second area of operation; and specifying a highest priority for the voltage control, if the recorded voltage lies outside the predetermined range defined by the voltage boundary values. (See claim 25).

Finally, the appealed claims include no means-plus-function language and no step-plus-function claims, so that 41.37(v) is satisfied as to its specific requirements for such claims, since none are present here. *Also, the present application does not contain any step-plus-function claims because the method claims in the present application are not "step plus function" claims because they do not recite "a step for," as required by the Federal Circuit and as stated in Section 2181 of the MPEP.*

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 16 to 38 are unpatentable under 35 U.S.C. § 103(a) over the combination of EP 1,111,753 to Koji et al., ("Koji") in view of U.S. Publication No. 2003/107351 to Taniguchi et al., ("Taniguchi").

7. ARGUMENTS

REJECTIONS OF CLAIMS 16 TO 38 UNDER 35 U.S.C. § 103(a)

Claims 16 to 38 were rejected under 35 U.S.C § 103(a) as unpatentable over EP 1,111,753 to Koji et al., ("Koji") in view of U.S. Publication No. 2003/107351 to Taniguchi et al., ("Taniguchi").

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Also, as clearly indicated by the Supreme Court in *KSR*, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. See KSR Int'l Co. v. Teleflex, Inc., 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some

articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Id., at 1396. Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

Claim 16 relates to an electrical device for controlling a generator in an electrical system of a motor vehicle, in which the controller provides a **first area of operation** ... in which a voltage control is performed to regulate the generator voltage, to the **exclusion of performing a torque control to regulate a braking torque exerted by the generator**, and at least one **second area of operation** ... in which the **torque control** is performed, to the **exclusion of performing the voltage control**, the **controller transitioning from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value**, in which the first upper threshold value and the first lower threshold value is defined by a boundary of the first area.

The Final Office Action of September 17, 2010 (at paragraph 22 on page 9) conclusorily asserts that the areas of operation are not structural limitations and that the areas of operation are a result of operation of the claimed subject matter.

It is respectfully submitted that the areas of operation are not a result but instead define the controller (a structural element) in terms of its function. As explained at M.P.E.P. Section 2173.05(g), there is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971). Functional claim language **must be evaluated and considered**, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. Furthermore, such functional language is often used in association with an element, ingredient, or a process operation to define a particular capability or purpose that is served by the recited element, ingredient or operation.

It is therefore respectfully submitted that this is the case in the present application where the particular capabilities and purposes of the recited element (the controller) for providing control capabilities in areas of operation are based on whether the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value, especially as understood in the context of the specification.

In *Innova/Pure Water Inc. v. Safari Water Filtration Sys. Inc.*, 381 F.3d 1111, 1117-20, 72 USPQ2d 1001, 1006-08 (Fed. Cir. 2004), the court noted that the claim term "operatively connected" is "a general descriptive claim term frequently used in patent drafting to reflect a functional relationship between claimed components," that is, the term "means the claimed components must be connected in a way to perform a designated function." It further stated that in the "absence of modifiers, general descriptive terms are typically construed as having their full meaning." *Id.* at 1118, 72 USPQ2d at 1006. In the patent claim at issue in that case, "subject to any clear and unmistakable disavowal of claim scope, the term 'operatively connected' takes the full breath of its ordinary meaning, i.e., 'said tube [is] operatively connected to said cap' when the tube and cap are arranged in a manner capable of performing the function of filtering." *Id.* at 1120, 72 USPQ2d at 1008.

It is therefore respectfully submitted that this is the case in the present application where the claim terms "the controller provides a first area of operation ... in which a voltage control is performed to regulate the generator voltage, to the exclusion of performing a torque control to regulate a braking torque exerted by the generator, and at least one second area of operation ... in which the torque control is performed, to the exclusion of performing the voltage control, the controller transitioning from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value" take the full breath of their ordinary meaning. That is, "the controller transitioning from the first area [in which a voltage control is performed to regulate the generator voltage, to the exclusion of performing a torque control] to the at least one second area [in which a torque control is performed to regulate the generator voltage, to the exclusion of performing a voltage control]" when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value.

Still further, it was held that the feature used to define a radical on a chemical compound as "incapable of forming a dye with said oxidizing developing agent" was functional, *but was perfectly acceptable because it set* ***definite*** *boundaries on the patent protection sought. In re Barr*, 444 F.2d 588, 170 USPQ 33 (CCPA 1971).

Once again, it is respectfully submitted that this is the case in the present application where the claim language sets definite boundaries - *namely, the controller* ***must*** *transition from the first area in which a voltage control is performed to regulate the generator voltage, to the exclusion of performing a torque control to the at least one second area in which a*

torque control is performed to regulate the generator voltage, to the exclusion of performing a voltage control when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value.

Also, as explained at Section 2173.05(b) of the M.P.E.P., a claim feature specifying that a certain part of a pediatric wheelchair be "so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats" was definite. *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ2d 1081 (Fed. Cir. 1986). In this instance, the court stated that the phrase "so dimensioned" *is as accurate as the subject matter permits*, noting that the patent law does not require that all possible lengths corresponding to the spaces in hundreds of different automobiles be listed in the patent, let alone that they be listed in the claims.

Still further, the Federal Circuit has recognized that limitations such as "members adapted to be positioned" and "portions . . . being resiliently dilatable whereby said housing may be slidably positioned" serve to precisely *define present structural attributes of interrelated component parts* of the claimed assembly. In re Venezia, 530 F.2d 956, 189 USPQ 149 (CCPA 1976).

It is therefore again respectfully submitted that this is the case in the present application where the claim language includes elements that are "so dimensioned", i.e., the first and second areas of operation, and a generator voltage, such that when the voltage "goes beyond one of a first upper threshold value and a first lower threshold value" the controller to transition from the first area of operation to the at least one second area of operation. Therefore the claim language precisely defines the present structural attributes of interrelated component parts of the claimed device.

The Office has not even asserted that these features are disclosed in any of the cited references. As explained above regarding MPEP 2173.05(g), a functional limitation **must be evaluated and considered**, just like any other feature of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used. It is respectfully submitted that the Office has not met its burden in this regard.

The Advisory Action of January 11, 2011 conclusorily asserts that the claims do not recite the limits of the "areas of operation". In fact, as explained above, *the controller **must** transition from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value.* It is also

asserted (at the continuation of 11) that the "areas of operation" are not elements of the controller and refer to a graphical representation of a plurality of electrical conditions which are not recited by the claims. As explained above, however, the "areas of operation" is functional language that **must be evaluated and considered**, just like any other feature of the claim, for what they fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used.

The claims (especially in view of the disclosure of the specification) do recite a graphical "area of operation" representing a plurality of electrical conditions which are recited by the claims, including "outputting a control signal to the generator in response to changes in the generator voltage", "the controller provides a first area of operation based on the value of the generator voltage" and "the controller transitioning from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value".

The Advisory Action of January 11, 2011 also conclusorily asserts that the claims do not recite how the electrical conditions required by the controller to establish said "areas of operation" are obtained. However, as explained above, the controller outputs a control signal to the generator in response to changes in the generator voltage and transitions from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value.

In the context of the presently claimed subject matter of claim 16, the areas of operation specify a predetermined response of the controller in relation to the status of the generator. Applicants respectfully submit that the claim 16 features relating to the areas of operation **must be evaluated and considered**, just like any other feature of the claim.

The Final Office Action (at page 4) concedes that merely combining Koji and Taniguchi is insufficient to disclose an identical controller, but unsupportedly and conclusorily asserts that the operational behavior of the controller would somehow be obvious to one skilled in the art. As explained above, however, the Office (under *KSR*) must provide a reason to support any conclusion that one of ordinary skill in the art would combine the prior art elements in the manner claimed and the Office has provided no such rationale regarding why the allegedly obvious configuration would result in "areas of operation" like those of claim 16.

As still further regards all of the obviousness rejections of the claims, it is respectfully submitted that not even a *prima facie* case has been made in the present case for obviousness, since the Office Actions to date never made any findings, such as, for example, regarding in any way whatsoever what a person having ordinary skill in the art would have been at the time the claimed subject matter of the present application was made. (See *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998) (the "factual predicates underlying" a *prima facie* "obviousness determination include the scope and content of the prior art, the differences between the prior art and the claimed invention, and the level of ordinary skill in the art")). It is respectfully submitted that the proper test for showing obviousness is what the "combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art", and that the Patent Office must provide particular findings in this regard — the evidence for which does not include "broad conclusory statements standing alone". (See *In re Kotzab*, 55 U.S.P.Q. 2d 1313, 1317 (Fed. Cir. 2000) (citing *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1618 (Fed. Cir. 1999) (obviousness rejections reversed where no findings were made "concerning the identification of the relevant art", the "level of ordinary skill in the art" or "the nature of the problem to be solved"))). It is respectfully submitted that there has been no such showings by the Office Actions to date or by the Advisory Action.

The Final Office Action does not provide any of the necessary findings, as explained above and makes only conclusorily assertions as to the obviousness of the areas of operation of the presently claimed subject matter of claim 16.

For example, the Final Office Action (at pages 5-6) merely concludes--without any evidentiary support--that it would have been obvious to graphically arrange operational parameters so as to define areas of operation like those of claim 16. Still further, at page 9, paragraph 21 merely conclusorily asserts that "one with ordinary skill in the art would develop and design a control architecture to perform a plurality of independent control strategies which could result in the claimed control results, given a predetermined set of control parameters to be controlled." Not only is this unclear as to what parameters are being controlled, no explanation is provided as to why the claimed features fall within a "control strategy" that is within the level of one of ordinary skill in the art.

Accordingly, the Final Office Action does not properly set forth the elements of a *prima facie* case of obviousness as to claim 16.

With respect to paragraph 24 on page 10 of the Final Office Action, any previous arguments relating to the control concept of the claimed subject matter were not intended to supplement or modify any recited claim features. Instead, reasons were detailed that supported a finding of non-obviousness, including, for example, the fact that the areas of operation are not an obvious design choice or configuration.

Accordingly, it is respectfully requested that the Office take these reasons into consideration in performing an obviousness analysis of the claims.

In view of all the foregoing, claim 16 is allowable, as are its dependent claims 17 to 24, 31 to 34, 37, and 38.

Claim 25 includes subject matter like that of claim 16 and it is therefore allowable for essentially the same reasons, as are its dependent claims 26 to 30, 35, and 36.

Withdrawal of the obviousness rejections is therefore respectfully requested.

In sum, claims 16 to 38 are allowable.

As further regards all of the obviousness rejections, any Official Notice was respectfully traversed to the extent that it is maintained and it was requested that the Examiner provide specific evidence to establish those assertions and/or contentions that may be supported by the Official Notices under 37 C.F.R. § 1.104(d)(2) or otherwise. The Examiner, however, never provided an affidavit and/or published information concerning these assertions, even though the § 103 rejections were apparently based on assertions that draw on facts within the personal knowledge of the Examiner, since no support was provided for these otherwise conclusory and unsupported assertions. (See also *MPEP* § 2144.03).

It is respectfully submitted that instead of providing a *prima facie* case of obviousness, the Office is simply stating, without any supporting evidence, that it would have been *obvious to try* the combination asserted by the Final Office Action. In this regard, the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Office's generalized assertions that it would have been obvious to modify or combine the references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Office Actions to date reflect a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

> The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .
>
> **Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> **Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

It is believed and respectfully submitted that the Office Actions to date offer no evidence, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify or combine references to provide the claimed subject matter of the claims to address the problems met thereby. Accordingly, the Office must provide *proper evidence of a motivation* for modifying or combining the references to provide the claimed subject matter.

The Federal Circuit, in the case of In re Kotzab, made plain that even if a claim concerns a "technologically simple concept" — which is not the case here — there still must be some finding as to the "specific understanding or principle within the knowledge of a

skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed," stating that:

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Here again, there have been no such findings to establish that the features discussed above of the rejected claims are met by the reference relied upon. As referred to above, any review of the reference, whether taken alone or combined, makes plain that it simply does not describe the features discussed above of the rejected claims.

Finally, the present lack of any of the required factual findings forces both Appellants and this Board to resort to unwarranted speculation to ascertain exactly what facts underly the present obviousness rejections. The law mandates that the allocation of the proof burdens requires that the Patent Office provide the factual basis for rejecting a patent application under 35 U.S.C. § 103. (See *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed. Cir. 1984) (citing *In re Warner*, 379 F.2d 1011, 1016, 154 U.S.P.Q. 173, 177 (C.C.P.A. 1967))). In short, the Examiner bears the initial burden of presenting a proper prima facie unpatentability case — which has not been met in the present case. (See *In re Oetiker*, 977 F.2d 1443, 1445, 24, U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992)).

It is therefore respectfully requested that all rejections of the pending claims be withdrawn.

CONCLUSION

In view of the above, it is respectfully requested that the rejections of claims 16-38 be reversed, and that these claims be allowed as presented.

Respectfully submitted,

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CLAIMS APPENDIX

1-15. (Canceled).

16. An electrical device for controlling a generator in an electrical system of a motor vehicle, comprising:

a controller configured to control a voltage of the generator by outputting a control signal to the generator in response to changes in the generator voltage, wherein the controller provides a first area of operation based on the value of the generator voltage, in which a voltage control is performed to regulate the generator voltage, to the exclusion of performing a torque control to regulate a braking torque exerted by the generator, and at least one second area of operation based on the value of the generator voltage, in which the torque control is performed, to the exclusion of performing the voltage control, the controller transitioning from the first area to the at least one second area when the generator voltage goes beyond one of a first upper threshold value and a first lower threshold value, the first upper threshold value and the first lower threshold value being defined by a boundary of the first area;

wherein the generator is coupled to an engine to generate electrical power.

17. The electrical device as recited in Claim 16, wherein at least one of: a) a transition between the first area and the at least one second area, and b) a width of the first area and the at least one second area, is defined according to the value of at least one operating parameter of the electrical device that influences one of the torque and the generator voltage.

18. The electrical device as recited in Claim 17, wherein the first upper threshold value and the first lower threshold value extend from a setpoint voltage lying between the first upper threshold value and the first lower threshold value.

19. The electrical device as recited in Claim 17, wherein the first area is defined as a function of a maximum allowable change in torque.

20. The electrical device as recited in Claim 17, wherein two second areas are provided for the torque control, and wherein the two second areas extend on both sides of the first area for the voltage control.

21. The electrical device as recited in Claim 17, wherein the at least one second area for the torque control lies within a voltage range defined by two voltage boundary values.

22. The electrical device as recited in Claim 17, wherein, in the at least one second area for the torque control, a torque variable is controlled to vary linearly.

23. The electrical device as recited in Claim 17, wherein, in the at least one second area for the torque control, a torque-influencing variable is controlled as a function of time and the at least one operating parameter of the electrical device.

24. The electrical device as recited in Claim 17, wherein, in the at least one second area for the torque control, a torque-influencing variable is controlled according to a functional relationship defined in a characteristics map.

25. A method for controlling an operation of a generator in connection with a vehicle electrical system of a motor vehicle, comprising:

recording a voltage of the generator, which is coupled to an engine to generate electrical power;

determining whether the recorded voltage lies in a specified range from a setpoint voltage;

performing a voltage control in which the generator voltage is regulated with reference to the setpoint voltage, to the exclusion of performing a torque control in which a braking torque exerted by the generator is regulated, if the recorded voltage lies in the specified range from the setpoint voltage, the specified range from the setpoint voltage defining a first area of operation;

performing the torque control, to the exclusion of performing the voltage control, if the recorded voltage: a) lies outside the specified range from the setpoint voltage; and b) lies within a predetermined range defined by voltage boundary values, the area specified by a) and b) defining at least one second area of operation; and

specifying a highest priority for the voltage control, if the recorded voltage lies outside the predetermined range defined by the voltage boundary values.

26. The method as recited in Claim 25, wherein, in performing the torque control, the torque is controlled to vary linearly.

27. The method as recited in Claim 25, wherein, in performing the torque control, the torque is changed as a function of time and a specified operating parameter of an electrical device that includes the generator and a controller, wherein a value the specified operating parameter influences the torque.

28. The method as recited in Claim 25, wherein, in performing the torque control, the torque is changed according to a functional relationship defined in a characteristics map.

29. The method as recited in Claim 25, wherein at least one of: a) a width of the first area and a width of the at least one second area, and b) a width of a transition area between the first area and the at least one second area, is predetermined.

30. The method as recited in Claim 25, wherein at least one of: a) a width of the first area and a width of the at least one second area, and b) a width of a transition area between the first area and the at least one second area, is adjusted according to operating parameters of an electrical device that includes the generator and a controller, during a driving operation of the motor vehicle equipped with the electrical device, wherein the operating parameters influence one of the generator voltage and the torque.

31. The electrical device as recited in Claim 16, wherein at least one of: a) a transition between the first area and the at least one second area, and b) a width of the first area and the at least one second area, is defined according to the value of at least one operating parameter of the electrical device that influences one of the torque and the generator voltage, wherein the first upper threshold value and the first lower threshold value extend from a setpoint voltage lying between the first upper threshold value and the first lower threshold value, and wherein the first area is defined as a function of a maximum allowable change in torque.

32. The electrical device as recited in Claim 31, wherein two second areas are provided for the torque control, wherein the two second areas extend on both sides of the first area for the voltage control, wherein the at least one second area for the torque control lies within a voltage range defined by two voltage boundary values, and wherein, in the at least one second area for the torque control, a torque variable is controlled to vary linearly.

33. The electrical device as recited in Claim 31, wherein two second areas are provided for the torque control, wherein the two second areas extend on both sides of the first area for the voltage control, wherein the at least one second area for the torque control lies within a voltage range defined by two voltage boundary values, and wherein, in the at least one second area for the torque control, a torque-influencing variable is controlled as a function of time and the at least one operating parameter of the electrical device.

34. The electrical device as recited in Claim 31, wherein two second areas are provided for the torque control, wherein the two second areas extend on both sides of the first area for the voltage control, wherein the at least one second area for the torque control lies within a voltage range defined by two voltage boundary values, and wherein, in the at least one second area for the torque control, a torque-influencing variable is controlled according to a functional relationship defined in a characteristics map.

35. The method as recited in Claim 25, wherein a width of the first area and a width of the at least one second area is predetermined.

36. The method as recited in Claim 25, wherein a width of a transition area between the first area and the at least one second area is predetermined.

37. The electrical device as recited in Claim 16, wherein a transition between the first area and the at least one second area is defined according to the value of at least one operating parameter of the electrical device that influences one of the torque and the generator voltage.

38. The electrical device as recited in Claim 16, wherein a width of the first area and the at least one second area is defined according to the value of at least one operating parameter of the electrical device that influences one of the torque and the generator voltage.

EVIDENCE APPENDIX

Appellants have not submitted any evidence pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132, and do not rely upon evidence entered by the Examiner.

RELATED PROCEEDINGS INDEX

There are no interferences or other appeals related to the present application.